UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,574	09/30/2003	Satoshi Tanaka	2003-1331A	1621

513 7590 05/22/2006		EXAMINER

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ART UNIT	PAPER NUMBER
2128	

DATE MAILED: 05/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>9/30/03</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-8</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-8</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>30 September 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☒ All   b)☐ Some * c)☐ None of:

       1.☐ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>9/30/03</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

Claims 1-8 are pending. Claims 1-8 have been examined. Claims 1-8 have been rejected.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Section 2106 [R-2] (Patentable Subject Matter - Computer-Related Inventions) of the MPEP recites the following:

"In practical terms, claims define nonstatutory processes if they:
- consist solely of mathematical operations without some claimed practical application (i.e., executing a "mathematical algorithm"); or
- __simply manipulate abstract ideas__, e.g., a bid (Schrader, 22 F.3d at 293-94, 30 USPQ2d at 1458-59) or a bubble hierarchy (Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759), __without some claimed practical application.__"

An invention which is eligible for patenting under 35 U.S.C. § 101 is in the "useful arts" when it is a machine, manufacture, process or composition of matter, which produces a concrete, tangible, and useful result. The fundamental test for patent eligibility is thus to determine whether the claimed invention produces a __"useful, concrete and tangible result."__ The test for practical application as applied by the examiner involves the determination of the following factors:
(1) "Useful" - The Supreme Court in Diamond v. Diehr requires that the examiner look at the claimed invention as a whole and compare any asserted utility with the claimed invention to determine whether the asserted utility is accomplished.
(2) "Tangible" - Applying In re Warmerdam, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994), the examiner will determine whether there is simply a mathematical construct claimed, such as a disembodied data structure and method of making it. If so, the claim involves no more than a manipulation of an abstract idea and therefore, is nonstatutory under 35 U.S.C. § 101. In Warmerdam the abstract idea of a data structure became capable of producing a useful result when it was fixed in a tangible medium, which enabled its functionality to be realized.
(3) "Concrete" - Another consideration is whether the invention produces a "concrete" result. Usually, this question arises when a result cannot be assured. An appropriate rejection under 35 U.S.C. § 101 should be accompanied by a lack of enablement rejection, because the invention cannot operate as intended without undue experimentation.

Claims 1-2 are rejected under 35 U.S.C. 101 because the claimed invention is drawn to non-statutory subject matter.

1. As per claim 1, the Examiner respectfully submits, under current PTO practice, that the claimed invention does not recite either a concrete, or tangible result and is merely drawn to a manipulation of abstract ideas.

    -   The claim is not tangible since the result of the method is undefined.

    -   The claim is not concrete because the results are not assured.

2. Dependent claims 2 inherit the defect as being dependent from independent claim 1.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3-5 are rejected under 35 U.S.C. 112, 2nd paragraph.

1. Regarding claim 1, the phrase "reconfigurable identical operating system" and "operating system being usable as a combination of only necessary functional portions" renders the claim indefinite because it is unclear what the applicants mean by "reconfigurable" and "usable as a combination of only necessary functional portions". For the purpose of examining the application, the examiner interprets it as any standard operating system usable for intended functions. See MPEP § 2173.05(d).

2. Regarding claims 3-5, the phrase "reconfigurable operating system usable as a combination of only necessary functional portions" renders the claim indefinite because it is unclear what the applicants mean by "reconfigurable" and "usable as a combination of only necessary functional portions". For the purpose of examining the application, the examiner interprets it as any standard operating system usable for intended functions. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over the applicants' admitted prior art in view of Donne et al (Application of Modern Methods in Power Plant Simulation and Control, Computing & Control Engineering Journal, April 2001).

1. As per claim 1, the applicants' admitted prior art teaches a control logic simulation-

verification method, comprising:

    executing a control logic and a plant model logic on a reconfigurable operating system

(p. 2, lines 17-21; p. 3, 14-17),

    said control logic being adapted to output, in accordance with an operating status, a

control command signal necessary for exercising run control of a plant (p. 1, the last line; p.

2, lines 1-4),

    said plant model logic being adapted to perform a simulated action, simulating an action

status of the plant, upon receipt of said control command signal, and output a run status

signal showing the action status (p. 3, lines 1-8), and

    said operating system being usable as a combination of only necessary functional

portions (this limitations has already been discussed in the above limitations).

    The applicants' admitted prior art does not teach a control logic and a plant model logic

being executed on the same operating system.

    Donne et al teach this feature (p. 78, col. 1, paragraph 2; p. 79, col. 2, paragraph 2).

Donne et al teach creating a plant model and then adding control logic to its model on a

computer system for simulation. This suggests control logic and plant model being executed

on the same operating system).

    It would have been obvious to one of ordinary skill in the art to combine the teachings of

the applicants' admitted prior art and Donne et al. Donne et al's teaching would have

eliminated the need for 2 different operating systems which would complicate maintenance

of computers and reduce cost in maintaining them.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over the applicants'

admitted prior art in view of Donne et al as applied to claim 1 above, and further in view

of Kruger et al (U.S. Patent 6,473,480 B1)

2. As per claim 2, the applicants' admitted prior art teaches said control logic is a program for

   exercising run control of a combined cycle power plant, said plant model logic is a program

   for simulating a running action of the combined cycle power plant (p. 1, the last line; p. 2,

   lines 1-4; p. 3, lines 1-8), but does not teach said operating system being Linux.

   Kruger et al teach this feature (col. 8, lines 46-56).

   It would have been obvious to one of ordinary skill in the art to combine the teachings of

   the applicants' admitted prior art and Kruger et al. Kruger et al's teaching would have

   reduced the cost in maintaining the applications programs since Linux is an open source

   operating system which does not cost for obtaining it and since it can be modified without

   any restriction.

Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over the

applicants' admitted prior art in view of Donne et al.

3. As per claim 3, the applicants' admitted prior art teaches a simulation-verification system,

   comprising:

   a control logic for outputting, in accordance with an operating status, a control command

   signal necessary for exercising run control of a plant, and which executes said control logic

   on a reconfigurable operating system usable as a combination of only necessary functional

   portions (p. 1, the last line; p. 2, lines 1-4); and

a plant model simulator personal computer which is loaded with a plant model logic for performing a simulated action, simulating an action status of the plant, upon receipt of said control command signal, and outputting a run status signal showing the action status, and which executes said plant model logic on an operating system identical with said operating system (p. 3, lines 14-17. The applicants' admitted prior art recites VAX/VMS operating system used for a simulator for a plant model. It is well known that VAX/VMS is an operating system for computers, so this recitation suggests the simulator is a computer).

But does not teach a control logic load in a control device simulating simulator personal computer.

Donne et al teaches this feature (p. 75, col. 1, paragraph 1; p. 78, col. 1, paragraph 2; p. 79, col. 2, paragraph 2. Donne et al recite inputting via MMS graphical user interface to build plant model and add control logic. This implies a computer is used for control logic).

It would have been obvious to one of ordinary skill in the art to combine the teachings of the applicants' admitted prior art and Donne et al. Donne et al's teaching would have facilitated the modeling and analysis of complex systems to improve plant design, control system design and in process operation (p. 75, the paragraph right under the title).

4. As per claim 4, the discussions in claim 3 have already explained portions in this claim that are identical to claim 1 and suggest additional features other than those discussed in claim 3. They are, therefore, rejected for the same reasons.

5. As per claim 5, the applicants' admitted prior art teaches a simulation-verification system, comprising:

a control device simulating simulator personal computer which is loaded with a control

logic for outputting, in accordance with an operating status, a control command signal

necessary for exercising run control of a plant; which is loaded with a computation cycle

managing task, provided in a control device, for setting a computation cycle of said control

logic (these features have already been discussed in claim 4); and which is loaded with

storage means, provided in the control device, for storing a computation status of said

control logic, and

which executes said control logic in said computation cycle, set by said computation

cycle managing task provided in the control device, on a reconfigurable operating system

usable as a combination of only necessary functional portions; and which can execute said

control logic from said computation status (these features have already been discussed in

claim 4) stored in said storage means provided in the control device (a computer as

discussed in claim 3 inherits storage means for storing); and

a plant model simulator personal computer which is loaded with a plant model logic for

performing a simulated action, simulating an action status of the plant, upon receipt of said

control command signal, and outputting a run status signal showing the action status; which

is loaded with a computation cycle managing task, provided in a plant model, for setting a

computation cycle of said plant model logic (these features have already been discussed in

claim 4); and which is loaded with storage means, provided in the plant model, for storing a

computation status of said plant model logic (a computer as discussed in claim 3 inherits

storage means for storing), and

which executes said plant model logic in said computation cycle, set by said computation

cycle managing task provided in the plant model, on an operating system identical with said

operating system; and which can execute said plant model logic from said computation

status stored in said storage means provided in the plant model (these features have

already been discussed in claim 4).

These limitations are, therefore, rejected for the same reasons as discussed in claims 1,

3, and 4.

Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the

applicants' admitted prior art in view of Donne et al as applied to claims 3-5, and further

in view of Kruger et al.

6. As per claim 6, these limitations have already been discussed in claim 2. They are,

    therefore, rejected for the same reasons.

7. As per claim 7, these limitations have already been discussed in claim 2. They are,

    therefore, rejected for the same reasons.

8. As per claim 8, these limitations have already been discussed in claim 2. They are,

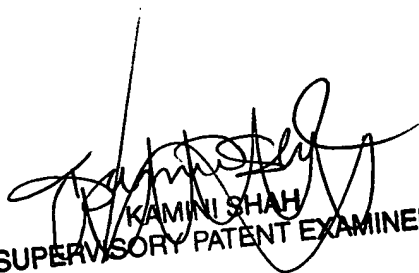   therefore, rejected for the same reasons.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cuong V. Luu whose telephone number is 571-272-8572. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah, can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. An inquiry of a general nature or relating to the status of this application should be directed to the TC2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CVL

KAMINI SHAH
SUPERVISORY PATENT EXAMINER